

SB621531



# Service Information

Cooling Systems

17 01 01

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May 2001

Service Engineering

## SUBJECT

### Coolant Level in Expansion Tank

## MODEL

E53 X5, E38 740, E39 540 All with M62 and M62TU engine

## SITUATION

1. Vehicle check control system indicates "Check Coolant Level" – permanently or intermittently displayed.
2. Traces of coolant residue found on top of the expansion tank and/or on the expansion tank cap.

## CAUSE

Field experience has shown that if the above situations are encountered, in many cases there are no leaks or component failures (including the coolant level switch) found in the cooling system.

Explanations:

1. Vehicle check control system indicates "Check Coolant Level" – permanently or intermittently displayed.

Permanently displayed:

On new vehicles, or vehicles which have recently had the coolant replaced, the cooling system bleeding process is not yet complete. Residual air remaining in the cooling system will gradually bleed off into the expansion tank. Bleeding completion time will vary depending on engine operating conditions, customer driving style, etc.

Consequently, the coolant level in the expansion tank will drop, in some cases below the cold fill level triggering the "Check Coolant Level" message.

Note: The coolant level will typically drop below the cold fill level more often in the winter months due to less expansion of the coolant.

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## ★ ★ FIX IT RIGHT THE FIRST TIME, ON TIME, EVERY TIME ★ ★

For administrative convenience and to reduce costs, this bulletin may contain repair procedures for authorized BMW car centers and/or authorized BMW SAV centers. All references to SAVs and/or the X5 are ONLY intended for authorized BMW SAV centers. Furthermore, ONLY BMW SAV centers are authorized to perform repair and service work on SAVs.

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by: HK



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Intermittently displayed:

The lower the engine temperature / ambient temperature, the lower the coolant level in the expansion tank.

This can cause the coolant level switch to **correctly** activate the check control message "Check Coolant Level" after a cold start due to the coolant level being detected as "on the lower limit" in the expansion tank.

As the engine warms up, the coolant will expand and the coolant level in the expansion tank will rise. The check control message "Check Coolant Level" will no longer appear when the engine is restarted (warm or hot).

This intermittent check control message is often the reason for **unnecessary** coolant level switch replacements since the level switch is functioning properly.

The angle of the vehicle (parking on uneven or steep grades) may also trigger intermittent check control messages regarding coolant level.

## 2. Traces of coolant residue found on top of the expansion tank and/or on the expansion tank cap.

If the coolant system is over filled, the pressure relief valve incorporated in the expansion tank cap will open allowing the excess coolant to escape from the expansion tank (this is a normal design function of the cap).

### **CORRECTION**

Optimization of coolant system filling and bleeding procedures were phased into production in 2/2001 to avoid low coolant level warning indications on new vehicles due to incomplete coolant system bleeding.

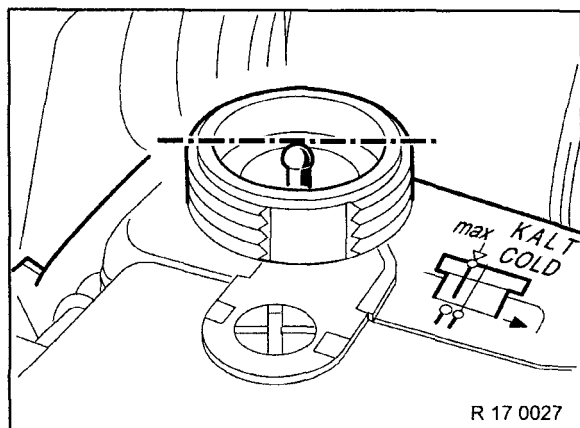
### **PROCEDURE**

#### 1. Vehicle check control system indicates "Check Coolant Level" – permanently or intermittently displayed.

- Check cooling system for leaks as outlined in repair manual, group 17 section 17 00 009.
- Check coolant level on a cold engine as outlined in repair manual, group 17 section 17 00 039.

**The coolant level must be checked with the engine cold.**

Note: The coolant temperature must not exceed 30°C (86°F). If the ambient temperature is greater than 30°C (86°F), allow the engine to cool down to the ambient temperature.



Black expansion tanks with float rod (E38 shown):

Top up coolant until the upper end of the red float rod is even with the upper edge of the expansion tank filler neck as shown in the illustration.

Note: Since the level rod and coolant tank will vary depending on model, follow the cold level instructions located on top of the expansion tank when checking level.

Do not over fill.

Note: Component analysis of "failed" coolant level switches, replaced for an intermittent low coolant display complaint, has indicated no switch malfunctions.

2. Traces of coolant residue found on top of the expansion tank and/or on the expansion tank cap.

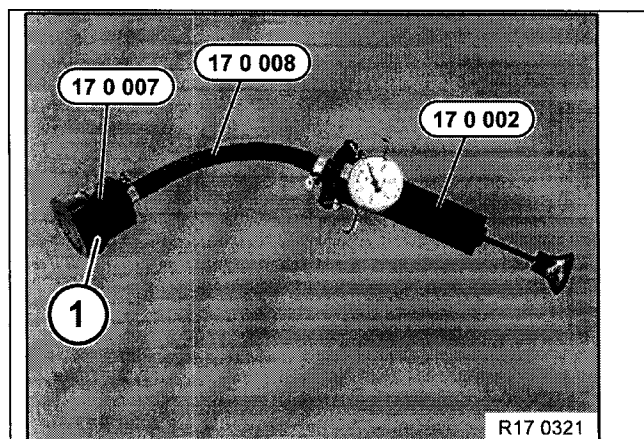
If the coolant system is over filled, the pressure relief valve incorporated in the expansion tank cap will open allowing the excess coolant to escape from the expansion tank (**this is a normal design function of the cap**).

The excess coolant which escapes from the expansion tank leaves a coolant residue on the outside of the expansion tank filler neck, top of the tank and cap.

The coolant residue found on the expansion tank and cap may lead to an unnecessary expansion cap replacement.

All traces of coolant found on the expansion tank and cap must be removed after checks / repairs have been performed.

**The expansion tank cap must always be checked to determine if replacement is needed thus avoiding unnecessary part replacement.** See repair manual, group 17 section 17 00 009 for cap checking procedure.



A new special tool number 90 88 6 170 008 (pressure hose) should be used in conjunction with hand pump tool number 88 88 6 170 002 and expansion tank cap test adapter tool number 90 88 6 170 007 when testing the expansion tank cap (1).

Note: The early style expansion tank cap test adapter tool number 88 88 6 170 006 was **revised and replaced** by adapter tool number 90 88 6 170 007.

The early style adapter tool number 88 88 6 170 006 should no longer be used and must be discarded. See Service Information bulletin 04 15 97 for more information.

**Only replace the expansion tank cap if a defect is verified.**

**WARRANTY INFORMATION**

Information only.

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